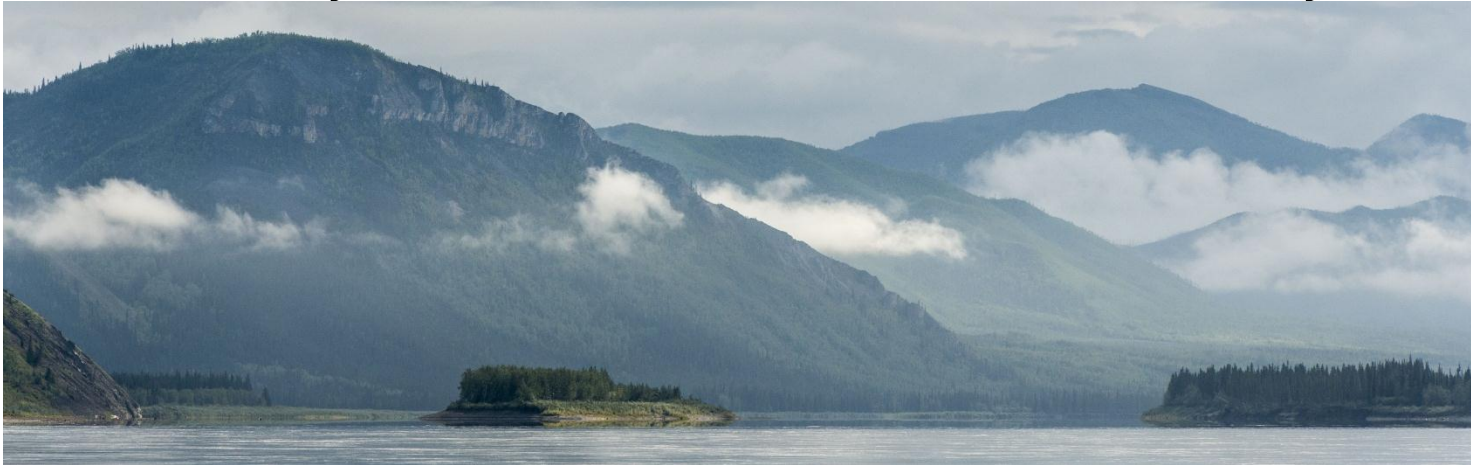




# Weather and Climate

## *Yukon-Charley Rivers Summer 2014 Weather Summary*



NPS photo by DevDharm Khalsa.

### Eagle Summer Weather 2014

In Eagle, June was colder and wetter than normal. The average monthly temperature of 55.9° F was 2.0° F cooler than normal. Thirteen days recorded measureable precipitation, with almost half of the monthly total (1.85 inches) coming between June 25-26 (0.76 inches). Overall, June ended up at 112% of normal precipitation.

Cooler and wetter than normal conditions continued in July. The average temperature was 59.7° F compared to a normal value of 60.4° F. Precipitation totaled 4.27 inches, 176% of normal; the 5<sup>th</sup> wettest July since reliable records started in 1949. Of the five wettest July's on record, four have occurred since 2000. The end of the month was particularly rainy, with 1.93 inches of rain recorded from July 25-28.

Overall, August was warmer and wetter than normal. Measureable precipitation was recorded on seventeen days in August, totaling 2.39 inches. Normal is 1.92 inches. Summer ended with the only freeze of the summer (27° F) on August 31.

Overall, the average summer temperature at Eagle was 28.6° F which is 0.3° F colder than the 1981-2010 normal and 0.2° F colder than the long-term average (1949-2014) (Figure 4). More than half of the days in summer 2014 recorded measurable precipitation. It was the 5<sup>th</sup> wettest summer on record. Of the five wettest summers, three have occurred since 2008. (see Figures 1 and 2; Table 1, 2, and 3)

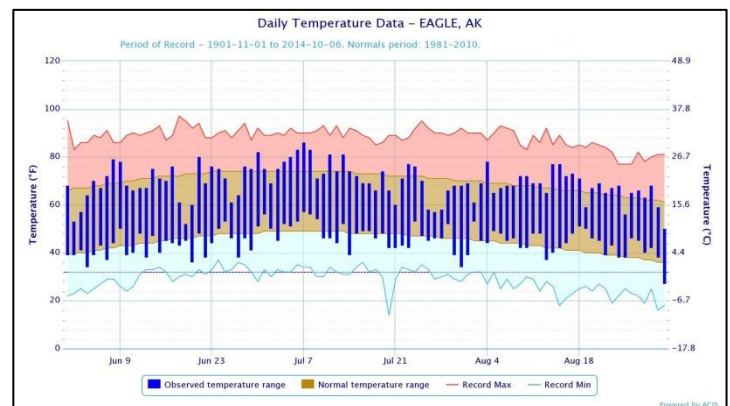


Figure 1. Summer 2014 daily temperatures at Bettles showing **record maximum** (red), **record minimum** (blue), **1981-2010 normal** (brown band) and **2014 observed range** (blue bars).

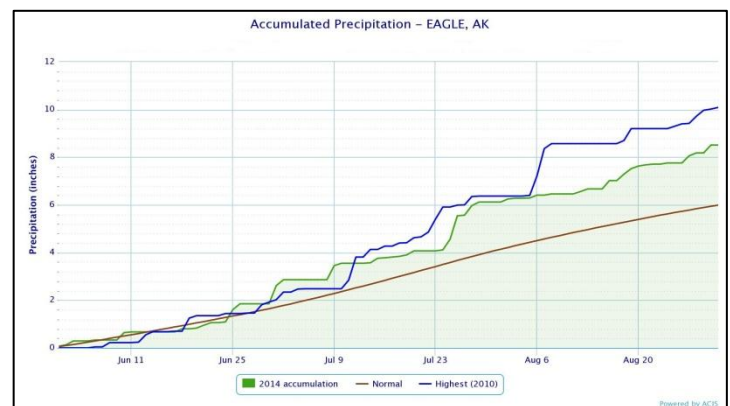


Figure 2. **Summer 2014** precipitation at Bettles (green) compared to **normal** (brown), and the wettest **summer of 1963** (blue).

Continued >>

Table 1. Temperature: Summer 2014 average monthly temperatures compared to the 1981-2010 normal.

Summer 2014	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
June	55.9	57.9	-2.0	82 / June 30	34 / June 4
July	59.7	60.4	-0.7	86 / July 7	34 / July 31
August	55.4	53.6	+1.8	78 / Aug 4	27 / Aug 31

Summer Season Temperature Departure from Normal: -0.3°F

Table 2. Precipitation: Summer 2014 monthly precipitation totals compared to normal.

Summer 2014	Total Monthly Precip. in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 hr. total in. / Date	# Days with $\geq 0.01$ in. water
June	1.85	1.64	+0.21	0.51 / June 25	13
July	4.27	2.43	+1.84	0.98 / July 26	17
August	2.39	1.92	+0.47	0.35 / Aug 16	17

Summer Season Departure from Normal: +2.52 inches (142% of normal)

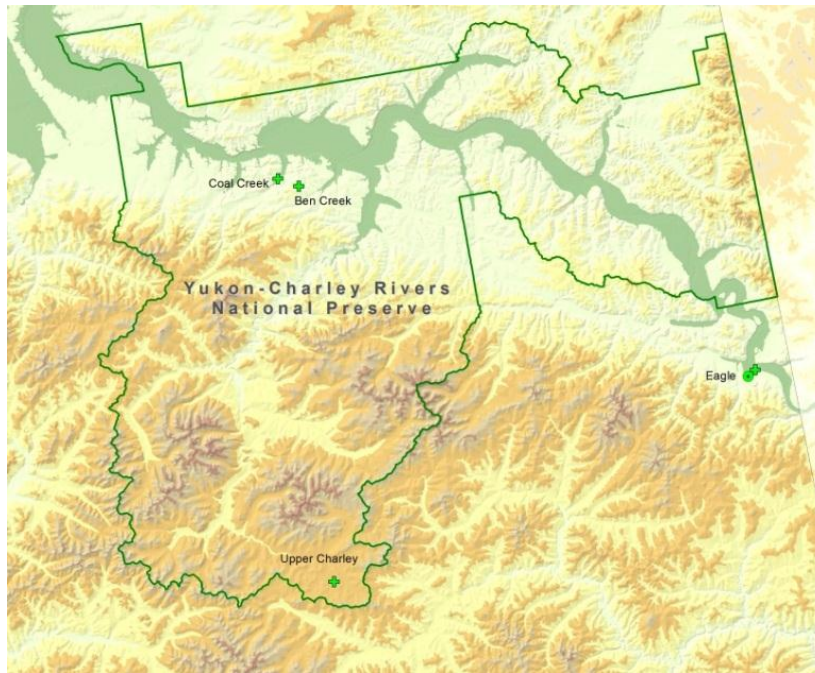


Figure 3. NPS Climate stations in Yukon-Charley Rivers National Park and Preserve.

Table 4. Summary of weather statistics from the YUCH climate stations. All data are preliminary and subject to review.

Site	Elev. (ft)	Average Temp (°F)			Rainfall (inches)			Peak Wind Speed (mph)
		June	July	Aug	June	July	Aug	Summer
Ben Creek	1850	55.1	57.5	54.4	2.43	2.95	2.76	22
Coal Creek	870	54.5	56.8	53.6	1.46	2.14	1.37	11
Upper Charley	3654	46.8	50.2	47.8	3.72	3.05	2.44	24

#### Interesting notes from RAWS stations:

- Data collection at Coal Creek and Upper Charley began in August 2005. At both sites, 2014 was the coldest June on record.
- On average, the higher elevation Upper Charley site was 6.7° F colder than Coal Creek.
- More rain was recorded in June at Upper Charley than July or August. At all other stations analyzed, July was the wettest month.

## Climate Monitoring in Yukon-Charley Rivers National Park and Preserve

The NPS climate stations Yukon-Charley Rivers are approaching the 10-year mark for climate monitoring. The stations complement long-term records available from the National Weather Service station in Eagle. The Upper Charley station is providing critical high elevation data which helps characterize climate gradients and patterns affecting resources in Yukon-Charley Rivers National Preserve. Table 4 summarizes the summer weather data for NPS sites.

We have added a phenology camera to the Upper Charley climate station. The camera capture images four times per day; the images are downloaded once a year. The images are used to help quantify the snow season, green-up period, and other basic phenologic information.

## Eagle Summer Temperature Trend

The average summer temperature for 2014 was 57.0° F, which is 0.3° F cooler than the 1981-2010 normal and 0.2° F degrees cooler than the long-term average (1949-2014). We calculate the average summer temperature by simply taking the average of June, July, and August monthly temperatures. Average summer temperatures show great variability with a range between 53.5° F in 1969 and 61.2° F in 2004. There is a statistically significant warming trend for the summer season of 0.23° F per decade based on a simple linear regression. The 10-year moving average shows the coldest summers in the mid-1960s to mid-1970s. On average, The summer period over the past decade has been 1.5° warmer than the long-term mean. (Figure 4)

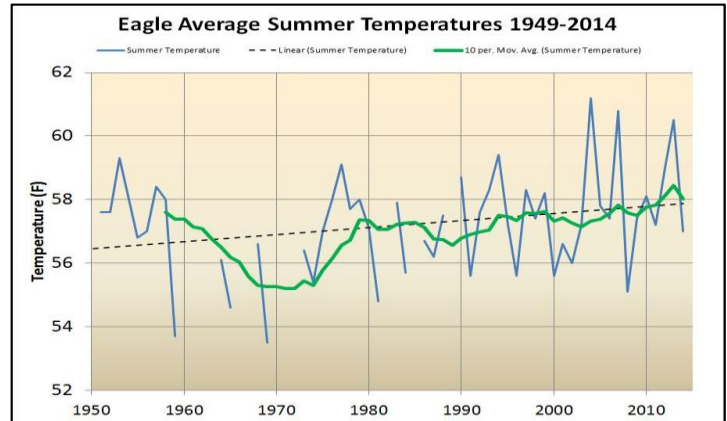


Figure 4. Average summer (June, July, August) temperatures in Eagle since 1949. The green line shows a 10-year moving average. The dotted line shows a significant ( $p < 0.01$ ) simple linear regression trend.

## Connecting Further

- New paper published – [Recent Sea Ice Increase and Temperature Decrease in the Bering Sea area, Alaska](#)
- Previous weather summaries and other climate monitoring documents on the [Central Alaska Network web portal](#)
- Access near real-time data from [Western Regional Climate Center](#) and [MesoWest](#)
- Statewide summary of weather highlights in the latest [Alaska Climate Dispatch](#) from the Alaska Center for Climate Assessment and Policy
- [Map](#) of projected temperature and precipitation changes for Yukon-Charley Rivers National Park and Preserve.

## More Information

Pam Sousanes  
Email: [pam\\_sousanes@nps.gov](mailto:pam_sousanes@nps.gov)  
Phone: 907-455-0677

Ken Hill  
Email: [kenneth\\_hill@nps.gov](mailto:kenneth_hill@nps.gov)  
Phone: 907-455-0678  
<http://science.nature.nps.gov/im/arcn>